

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-23-1	Methyl-tert-butyl ether	0.6 ug/L	1U ug/L
MW-23-2	Methyl-tert-butyl ether	0.4 ug/L	1U ug/L
MW-23-5	Methyl-tert-butyl ether	0.3 ug/L	1U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was acceptable.

#### **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

JPL, 00HW019

Volatiles - Data Qualification Summary - SDG 01-1342

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-1342

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Field Blank Data Qualification Summary - SDG 01-1342

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-1342	MW-23-1	Methyl-tert-butyl ether	1U ug/L	A
01-1342	MW-23-2	Methyl-tert-butyl ether	1U ug/L	A
01-1342	MW-23-5	Methyl-tert-butyl ether	1U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 23, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1395

**Sample Identification**

Equipment Rinsate  
MW-24-1  
MW-24-2  
MW-24-3  
MW-24-4  
MW-24-5  
Source Blank  
Trip Blank  
MW-24-3MS  
MW-24-3MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
1/25/01	Dichlorodifluoromethane 2,2-Dichloropropane 1,1,2,2-Tetrachloroethane	31.60 33.07 33.20	Equipment Rinsate MW-24-1 MW-24-3 MW-24-4 MW-24-5 Source Blank MW-24-3MS MW-24-3MSD G1251MB	J (all detects) UJ (all non-detects)	P
1/26/01	1,1,2,2-Tetrachloroethane	31.60	MW-24-2 Trip Blank G1261MB	J (all detects) UJ (all non-detects)	P

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
G1251MB	1/26/01	Dibromochloromethane	0.6 ug/L	Equipment Rinsate MW-24-1 MW-24-3 MW-24-4 MW-24-5 Source Blank

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
Equipment Rinsate	1/23/01	Dibromochloromethane	0.052 ug/L	MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5

Sample "Source Blank" was identified as a source blank. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	1/23/01	2-Butanone Dibromochloromethane Methyl-tert-butyl ether	2 ug/L 0.5 ug/L 0.8 ug/L	Equipment Rinsate MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 Source Blank

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-24-1	2-Butanone Dibromochloromethane	0.7 ug/L 0.52 ug/L	5U ug/L 0.52U ug/L
MW-24-4	Methyl-tert-butyl ether	0.5 ug/L	1U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was acceptable.

#### **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Volatiles - Data Qualification Summary - SDG 01-1395**

SDG	Sample	Compound	Flag	A or P	Reason
01-1395	Equipment Rinsate MW-24-1 MW-24-3 MW-24-4 MW-24-5 Source Blank	Dichlorodifluoromethane 2,2-Dichloropropane 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
01-1395	MW-24-2 Trip Blank	1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**JPL, 00HW019**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Volatiles - Field Blank Data Qualification Summary - SDG 01-1395**

SDG	Sample	Compound	Modified Final Concentration	A or P
01-1395	MW-24-1	2-Butanone Dibromochloromethane	5U ug/L 0.52U ug/L	A
01-1395	MW-24-4	Methyl-tert-butyl ether	1U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** February 16 through February 17, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1924

**Sample Identification**

ER-18	MW-20-4D
ER-19	MW-22-1
ER-20	MW-22-2
ER-22	MW-22-3
MW-18-1	MW-22-4
MW-18-2	MW-22-5
MW-18-3	Source Blank
MW-18-4	Trip Blank
MW-18-5	MW-19-3MS
MW-19-1	MW-19-3MSD
MW-19-2	MW-20-3MS
MW-19-3	MW-20-3MSD
MW-19-4	MW-22-4MS
MW-19-5	MW-22-4MSD
MW-19-2D	
MW-20-1	
MW-20-2	
MW-20-3	
MW-20-4	
MW-20-5	

## Introduction

This data review covers 34 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
G1632MB	2/25/01	Methylene chloride	0.9 ug/L	MW-18-3 MW-18-4 MW-18-5 MW-19-1 MW-19-2 MW-19-4 MW-19-5 MW-19-2D MW-20-1 MW-20-3 Trip Blank

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
G1633MB	2/26/01	Methylene chloride	0.7 ug/L	MW-20-2 MW-20-4 MW-20-5 MW-20-4D MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-18-3	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-18-4	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-18-5	Methylene chloride	0.6 ug/L	0.6U ug/L
MW-19-3	Methylene chloride	1.7 ug/L	1.7U ug/L

Samples ER-18, ER-19, ER-20, and ER-22 were identified as equipment rinsates. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-18	2/16/01	Methylene chloride Toluene	1.5 ug/L 0.6 ug/L	MW-18-1 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D
ER-19	2/17/01	Methylene chloride Toluene	1.8 ug/L 0.4 ug/L	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-20	2/16/01	Methylene chloride Toluene	1.9 ug/L 0.7 ug/L	MW-18-1 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D
ER-22	2/17/01	Methylene chloride Toluene	2.4 ug/L 0.4 ug/L	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Sample "Source Blank" was identified as a source blank. No volatile contaminants were found in this blank with the following exceptions:

Source Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Source Blank	2/17/01	Methylene chloride Toluene	0.5 ug/L 0.4 ug/L	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	2/16/01	Methylene chloride	0.9 ug/L	ER-18 ER-19 ER-20 ER-22 MW-18-1 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-4D MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 Source Blank

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-18	Methylene chloride	1.5 ug/L	1.5U ug/L
ER-19	Methylene chloride	1.8 ug/L	1.8U ug/L
ER-20	Methylene chloride	1.9 ug/L	1.9U ug/L
ER-22	Methylene chloride	2.4 ug/L	2.4U ug/L
MW-18-1	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-18-2	Methylene chloride	1.7 ug/L	1.7U ug/L
MW-18-3	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-18-4	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-18-5	Methylene chloride	0.6 ug/L	0.6U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-19-3	Methylene chloride	1.7 ug/L	1.7 ug/L
Source Blank	Methylene chloride	0.5 ug/L	0.5U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was acceptable.

### XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

### XVI. Field Duplicates

Samples MW-19-2 and MW-19-2D and samples MW-20-4 and MW-20-4D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-19-2	MW-19-2D	
Tetrachloroethene	0.5	0.5	0
Trichloroethene	0.8	0.8	0

**JPL, 00HW019****Volatiles - Data Qualification Summary - SDG 01-1924**

No Sample Data Qualified in this SDG

**JPL, 00HW019****Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-1924**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-1924	MW-18-3	Methylene chloride	0.5U ug/L	A
01-1924	MW-18-4	Methylene chloride	0.5U ug/L	A
01-1924	MW-18-5	Methylene chloride	0.6U ug/L	A
01-1924	MW-19-3	Methylene chloride	1.7U ug/L	A

**JPL, 00HW019****Volatiles - Field Blank Data Qualification Summary - SDG 01-1924**

SDG	Sample	Compound	Modified Final Concentration	A or P
01-1924	ER-18	Methylene chloride	1.5U ug/L	A
01-1924	ER-19	Methylene chloride	1.8U ug/L	A
01-1924	ER-20	Methylene chloride	1.9U ug/L	A
01-1924	ER-22	Methylene chloride	2.4U ug/L	A
01-1924	MW-18-1	Methylene chloride	1.4U ug/L	A
01-1924	MW-18-2	Methylene chloride	1.7U ug/L	A
01-1924	MW-18-3	Methylene chloride	0.5U ug/L	A
01-1924	MW-18-4	Methylene chloride	0.5U ug/L	A
01-1924	MW-18-5	Methylene chloride	0.6U ug/L	A
01-1924	MW-19-3	Methylene chloride	1.7 ug/L	A
01-1924	Source Blank	Methylene chloride	0.5U ug/L	A

**SVOC**

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 23 through January 25, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** EPA Level IV  
**Laboratory:** Truesdail Laboratories, Inc.  
**Sample Delivery Group (SDG):** 602666

**Sample Identification**

MW-24-1  
MW-4-2  
MW-17-3  
MW-16  
MW-13  
MW-13-D  
MW-16MS  
MW-16MSD  
MW-16DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270 using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were greater than or equal to 0.05.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD)

were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was acceptable.

### XV. Overall Assessment

Data flags have been summarized at the end of the report.

### XVI. Field Duplicates

Samples MW-13 and MW-13-D were identified as field duplicates. No 1,4-Dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-13	MW-13-D	
1,4-Dioxane	1.94	1.90	2



**JPL, 00HW019**

**1,4-Dioxane - Data Qualification Summary - SDG 602666**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 602666**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 602666**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 23 through January 25, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level IV  
**Laboratory:** Weck Laboratories, Inc.  
**Sample Delivery Group (SDG):** WS21590

**Sample Identification**

MW-4-2  
MW-17-3  
MW-16  
MW-13  
MW-13-D  
MW-24-1  
MW-16MS  
MW-16MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was not performed by the laboratory.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies. The percent recoveries (%R) of amounts in continuing standard mixtures were within the 85-115% QC limits.

## V. Blanks

Method blanks were analyzed at the required frequencies with the following exceptions:

Blank ID (Associated Samples)	Compound	Finding	Criteria	Flag	A or P
Method Blank	All TCL compounds	Blank was analyzed before the CCV	Blank should be analyzed after the CCV as per the method.	None	P

Method blanks were reviewed for each matrix as applicable. No N-Nitrosodimethylamine contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
Method Blank	1/31/01	N-Nitrosodimethylamine	3.0 ug/L	All samples in SDG WS21590

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X

for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-16	N-Nitrosodimethylamine	2.2 ug/L	2.2U ug/L

No field blanks were identified in this SDG.

#### **VI. Surrogate Spikes**

Surrogates were not performed by the laboratory.

#### **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

#### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria.

#### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria.

#### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was acceptable.

## **XV. Overall Assessment of Data**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples MW-13 and MW-13-D were identified as field duplicates. No N-Nitrosodimethylamine was detected in any of the samples.

**JPL, 00HW019**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG WS21590**

SDG	Sample	Compound	Flag	A or P	Reason
WS21590	MW-4-2 MW-17-3 MW-16 MW-13 MW-13-D MW-24-1	N-Nitrosodimethylamine	None	P	Method blank

**JPL, 00HW019**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG WS21590**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
WS21590	MW-16	N-Nitrosodimethylamine	2.2U ug/L	A

**JPL, 00HW019**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG WS21590**

No Sample Data Qualified in this SDG

# Metals

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 29, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1533

**Sample Identification**

MW-1  
MW-9  
MW-1D  
MW-9MS  
MW-9MSD  
MW-9DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	73.2 ug/L 16.3 ug/L 42.9 ug/L 276 ug/L 704 ug/L	All samples in SDG 01-1533
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium Sodium	1.8 ug/L 93.4 ug/L 26.4 ug/L 79.2 ug/L 280.3 ug/L 508.9 ug/L	All samples in SDG 01-1533

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-1	Iron	27.0 ug/L	27.0U ug/L
MW-9	Arsenic	2.6 ug/L	2.6U ug/L

No field blanks were identified in this SDG.

#### **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

#### **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples MW-1 and MW-1D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-1	MW-1D	
Calcium	59600	58400	2
Iron	27.0	275	164
Magnesium	19400	19300	0.5
Potassium	2980	3090	4
Sodium	26600	26400	0.8

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1533**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1533**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1533	MW-1	Iron	27.0U ug/L	A
01-1533	MW-9	Arsenic	2.6U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1533**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 9, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1135

**Sample Identification**

Equipment Rinsate  
MW-3-1  
MW-3-2  
MW-3-3  
MW-3-4  
MW-3-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Magnesium Potassium	3.2 ug/L 13.6 ug/L 16.7 ug/L	All samples in SDG 01-1135
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium	2.1 ug/L 155.9 ug/L 10.6 ug/L 29.8 ug/L 54.1 ug/L	All samples in SDG 01-1135

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Iron Potassium	30.1 ug/L 68.7 ug/L	30.1U ug/L 68.7U ug/L
MW-3-3	Arsenic	2.1 ug/L	2.1U ug/L
MW-3-4	Arsenic	4.1 ug/L	4.1U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-3-5	Arsenic	6.2 ug/L	6.2U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/9/01	Iron Potassium	30.1 ug/L 68.7 ug/L	MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1135**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1135**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1135	Equipment Rinsate	Iron Potassium	30.1U ug/L 68.7U ug/L	A
01-1135	MW-3-3	Arsenic	2.1U ug/L	A
01-1135	MW-3-4	Arsenic	4.1U ug/L	A
01-1135	MW-3-5	Arsenic	6.2U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1135**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 24, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1420

**Sample Identification**

Equipment Rinsate  
MW-4-1  
MW-4-2  
MW-4-3  
MW-4-4  
MW-4-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Potassium Sodium	4.8 ug/L 148 ug/L 293 ug/L	All samples in SDG 01-1420
ICB/CCB	Calcium Iron Potassium Sodium	48.9 ug/L 10.9 ug/L 149.9 ug/L 493.4 ug/L	All samples in SDG 01-1420

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

All graphite furnace atomic absorption QC were within validation criteria.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1420**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1420**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1420**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 26, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1476

**Sample Identification**

MW-10  
MW-5

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium	52.8 ug/L 20.6 ug/L 17.1 ug/L 227 ug/L	All samples in SDG 01-1476
ICB/CCB	Arsenic Magnesium Potassium	1.8 ug/L 29.5 ug/L 229.3 ug/L	All samples in SDG 01-1476

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-5	Iron	38.6 ug/L	38.6U ug/L

No field blanks were identified in this SDG.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1476**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1476**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1476	MW-5	Iron	38.6U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1476**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 30, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1562

**Sample Identification**

MW-6  
MW-15

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	73.2 ug/L 16.3 ug/L 42.9 ug/L 276 ug/L 704 ug/L	All samples in SDG 01-1562
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium Sodium	1.8 ug/L 93.4 ug/L 26.4 ug/L 79.2 ug/L 280.3 ug/L 508.9 ug/L	All samples in SDG 01-1562

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-6	Arsenic	2.2 ug/L	2.2U ug/L
MW-15	Iron	42.5 ug/L	42.5U ug/L

No field blanks were identified in this SDG.

#### **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

#### **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1562**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1562**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1562	MW-6	Arsenic	2.2U ug/L	A
01-1562	MW-15	Iron	42.5U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1562**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** February 1, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1611

**Sample Identification**

MW-8  
MW-8MS  
MW-8MSD  
MW-8DUP

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	123 ug/L 9.6 ug/L 25.3 ug/L 233 ug/L 635 ug/L	All samples in SDG 01-1611
ICB/CCB	Calcium Magnesium Potassium Sodium	89.4 ug/L 14.1 ug/L 236.2 ug/L 644.1 ug/L	All samples in SDG 01-1611

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1611**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1611**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1611**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 17, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1299

**Sample Identification**

Equipment Rinsate  
MW-11-1  
MW-11-2  
MW-11-3  
MW-11-4  
MW-11-5  
MW-11-5D  
MW-11-4MS  
MW-11-4MSD  
MW-11-4DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Potassium	144 ug/L 120 ug/L	All samples in SDG 01-1299
ICB/CCB	Arsenic Calcium Iron Potassium	1.4 ug/L 174.3 ug/L 6.7 ug/L 116.1 ug/L	All samples in SDG 01-1299

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-5	Arsenic	6.0 ug/L	6.0U ug/L
MW-11-5D	Arsenic	5.8 ug/L	5.8U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-11-4DUP (All samples in SDG 01-1299)	Iron	-	84.5 ug/L ( $\leq 50$ )	J (all detects) UJ (all non-detects)	A

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-11-4L	Sodium	12.6 ( $\leq 10$ )	All samples in SDG 01-1299	J (all detects)	A

### XI. Sample Result Verification

All sample result verifications met validation criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

Samples MW-11-5 and MW-11-5D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/l)		RPD
	MW-11-5	MW-11-5D	
Arsenic	6.0	5.8	3
Calcium	20900	21100	1
Iron	311	185	51
Magnesium	1990	2000	0.5
Potassium	1160	1190	3
Sodium	47700	48300	1

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1299**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1299	Equipment Rinsate MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D	Iron	J (all detects) UJ (all non-detects)	A	Duplicate analysis (Difference)
01-1299	Equipment Rinsate MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D	Sodium	J (all detects)	A	ICP serial dilution (%D)

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1299**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1299	MW-11-5	Arsenic	6.0U ug/L	A
01-1299	MW-11-5D	Arsenic	5.8U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1299**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 22, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1382

**Sample Identification**

Equipment Rinsate  
MW-12-1  
MW-12-2  
MW-12-3  
MW-12-4  
MW-12-5  
MW-12-5D  
MW-12-4MS  
MW-12-4MSD  
MW-12-4DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

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- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Potassium Sodium	4.8 ug/L 148 ug/L 293 ug/L	All samples in SDG 01-1382
ICB/CCB	Calcium Iron Potassium Sodium	48.9 ug/L 10.9 ug/L 149.9 ug/L 493.4 ug/L	All samples in SDG 01-1382

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-12-4DUP (MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D)	Iron	-	59 ug/L (<50)	J (all detects) UJ (all non-detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

## X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications met validation criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples MW-12-5 and MW-12-5D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/l)		RPD
	MW-12-5	MW-12-5D	
Arsenic	2.7	2.1U	200
Calcium	35000	36600	4
Iron	125	130	4
Magnesium	9850	10200	3
Potassium	1950	2080	6
Sodium	35000	36300	4

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1382**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1382	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D	Iron	J (all detects) UJ (all non-detects)	A	Duplicate analysis (Difference)

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1382**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1382**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 25, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1460

**Sample Identification**

MW-13  
MW-16  
MW-16MS  
MW-16MSD  
MW-16DUP

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium	52.8 ug/L 20.6 ug/L 17.1 ug/L 227 ug/L	All samples in SDG 01-1460
ICB/CCB	Arsenic Magnesium Potassium	1.8 ug/L 29.5 ug/L 229.3 ug/L	All samples in SDG 01-1460

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-13	Iron	81.7 ug/L	81.7U ug/L
MW-16	Arsenic Iron	2.4 ug/L 46.9 ug/L	2.4U ug/L 46.9U ug/L

No field blanks were identified in this SDG.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-16DUP (All samples in SDG 01-1460)	Iron	-	198 ug/L ( $\leq 50$ )	J (all detects) UJ (all non-detects)	A

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verifications met validation criteria.

#### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1460**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1460	MW-13 MW-16	Iron	J (all detects) UJ (all non-detects)	A	Duplicate analysis (Difference)

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1460**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1460	MW-13	Iron	81.7U ug/L	A
01-1460	MW-16	Arsenic Iron	2.4U ug/L 46.9U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1460**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 16, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1275

**Sample Identification**

Equipment Rinsate  
MW-14-1  
MW-14-2  
MW-14-3  
MW-14-4  
MW-14-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	86.8 ug/L 10.1 ug/L 13.2 ug/L 115 ug/L 178 ug/L	All samples in SDG 01-1275
ICB/CCB	Arsenic Calcium Potassium	1.4 ug/L 223.9 ug/L 115.6 ug/L	All samples in SDG 01-1275

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	311 ug/L 27.6 ug/L 53.5 ug/L 123 ug/L 230 ug/L	311U ug/L 27.6U ug/L 53.5U ug/L 123U ug/L 230U ug/L
MW-14-4	Arsenic	2.2 ug/L	2.2U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-5	Arsenic	2.7 ug/L	2.7U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/16/01	Calcium Iron Magnesium Potassium Sodium	311 ug/L 27.6 ug/L 53.5 ug/L 123 ug/L 230 ug/L	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-3	Iron	90.1 ug/L	90.1U ug/L
MW-14-4	Iron	113 ug/L	113U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent

recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1275**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1275**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1275	Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	311U ug/L 27.6U ug/L 53.5U ug/L 123U ug/L 230U ug/L	A
01-1275	MW-14-4	Arsenic	2.2U ug/L	A
01-1275	MW-14-5	Arsenic	2.7U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1275**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1275	MW-14-3	Iron	90.1U ug/L	A
01-1275	MW-14-4	Iron	113U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 8, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1095

**Sample Identification**

Equipment Rinsate  
MW-17-1  
MW-17-2  
MW-17-3  
MW-17-4  
MW-17-5  
MW-17-2D  
MW-17-1MS  
MW-17-1MSD  
MW-17-1DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-17-1	Calcium Iron Magnesium Potassium Sodium	More than ten samples were run between the ICV and the CCV.	No more than ten samples to be run between the ICV and the CCV.	None None None None None	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Magnesium Potassium	3.2 ug/L 13.6 ug/L 16.7 ug/L	All samples in SDG 01-1095
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium	2.1 ug/L 155.9 ug/L 10.6 ug/L 29.8 ug/L 54.1 ug/L	All samples in SDG 01-1095

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or

were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Calcium Iron Potassium	185 ug/L 11.9 ug/L 66.3 ug/L	185U ug/L 11.9U ug/L 66.3U ug/L
MW-17-1	Arsenic	2.1 ug/L	2.1U ug/L
MW-17-3	Arsenic	3.2 ug/L	3.2U ug/L
MW-17-4	Arsenic	3.7 ug/L	3.7U ug/L
MW-17-5	Arsenic	2.8 ug/L	2.8U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/8/01	Calcium Iron Potassium	185 ug/L 11.9 ug/L 66.3 ug/L	MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results

were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

## X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications met validation criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples MW-17-2 and MW-17-2D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-17-2	MW-17-2D	
Calcium	28300	28200	0.4
Iron	244	255	4
Magnesium	14800	14600	1
Potassium	2340	2280	3
Sodium	14700	14600	0.7

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1095**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1095	MW-17-1	Calcium Iron Magnesium Potassium Sodium	None None None None None	P	Calibration

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1095**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1095	Equipment Rinsate	Calcium Iron Potassium	185U ug/L 11.9U ug/L 66.3U ug/L	A
01-1095	MW-17-1	Arsenic	2.1U ug/L	A
01-1095	MW-17-3	Arsenic	3.2U ug/L	A
01-1095	MW-17-4	Arsenic	3.7U ug/L	A
01-1095	MW-17-5	Arsenic	2.8U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1095**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 10, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1172

**Sample Identification**

Equipment Rinsate  
MW-18-2  
MW-18-3  
MW-18-4  
MW-18-5  
Equipment RinsateMS  
Equipment RinsateMSD  
Equipment RinsateDUP

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	More than ten samples were run between the ICV and the CCV.	No more than ten samples to be run between the ICV and the CCV.	None None None None None	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Magnesium Potassium Sodium	9.8 ug/L 65.8 ug/L 152 ug/L 140 ug/L	All samples in SDG 01-1172
ICB/CCB	Arsenic Calcium Iron Potassium Sodium	2.1 ug/L 51.5 ug/L 5.2 ug/L 156.9 ug/L 385.1 ug/L	All samples in SDG 01-1172

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or

were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	78.4 ug/L 13.6 ug/L 36.8 ug/L 170 ug/L 278 ug/L	78.4U ug/L 13.6U ug/L 36.8U ug/L 170U ug/L 278U ug/L
MW-18-5	Arsenic	2.2 ug/L	2.2U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/10/01	Calcium Iron Magnesium Potassium Sodium	78.4 ug/L 13.6 ug/L 36.8 ug/L 170 ug/L 278 ug/L	MW-18-2 MW-18-3 MW-18-4 MW-18-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-18-3	Iron	58.8 ug/L	58.5U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results

were within QC limits.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

## **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1172**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1172	Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	None None None None None	P	Calibration

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1172**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1172	Equipment Rinsate	Calcium Iron Magnesium Potassium Sodium	78.4U ug/L 13.6U ug/L 36.8U ug/L 170U ug/L 278U ug/L	A
01-1172	MW-18-5	Arsenic	2.2U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1172**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1172	MW-18-3	Iron	58.8U ug/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 15, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1261

### Sample Identification

Equipment Rinsate  
MW-19-1  
MW-19-2  
MW-19-3  
MW-19-4  
MW-19-5  
MW-19-2D  
MW-19-3MS  
MW-19-3MSD  
MW-19-3DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N *Presumptive evidence of presence of the constituent.*
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	86.8 ug/L 10.1 ug/L 13.2 ug/L 115 ug/L 178 ug/L	All samples in SDG 01-1261
ICB/CCB	Calcium Potassium	223.9 ug/L 115.6 ug/L	All samples in SDG 01-1261

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Calcium Iron Potassium	205 ug/L 34.5 ug/L 127 ug/L	205U ug/L 34.5U ug/L 127U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal

contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/15/	Calcium Iron Potassium	205 ug/L 34.5 ug/L 127 ug/L	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verifications met validation criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

Samples MW-19-2 and MW-19-2D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/l)		RPD
	MW-19-2	MW-19-2D	
Calcium	57300	60700	6
Iron	2270	1080	71
Magnesium	20300	21600	6
Potassium	1660	1710	3
Sodium	16000	16300	2

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1261**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1261**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1261	Equipment Rinsate	Calcium Iron Potassium	205U ug/L 34.5U ug/L 127U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1261**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 12, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1220

**Sample Identification**

Equipment Rinsate  
MW-20-1  
MW-20-2  
MW-20-3  
MW-20-2MS  
MW-20-2MSD  
MW-20-2DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	168 ug/L 8.9 ug/L 100 ug/L 159 ug/L 975 ug/L	All samples in SDG 01-1220
ICB/CCB	Calcium Magnesium Potassium Sodium	51.3 ug/L 34.6 ug/L 179.7 ug/L 938.1 ug/L	All samples in SDG 01-1220

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Iron Potassium	15.7 ug/L 187 ug/L	15.7U ug/L 187U ug/L
MW-20-2	Iron	43.6 ug/L	43.6U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal

contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/12/01	Iron Potassium	15.7 ug/L 187 ug/L	MW-20-1 MW-20-2 MW-20-3

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-1	Iron	73.1 ug/L	73.1U ug/L
MW-20-2	Iron	43.6 ug/L	43.6U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

<b>Diluted Sample</b>	<b>Analyte</b>	<b>%D (Limits)</b>	<b>Associated Samples</b>	<b>Flag</b>	<b>A or P</b>
MW-20-2L	Sodium	13.4 ( $\leq 10$ )	All samples in SDG 01-1220	J (all detects)	A

### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1220**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1220	Equipment Rinsate MW-20-1 MW-20-2 MW-20-3	Sodium	J (all detects)	A	ICP serial dilution (%D)

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1220**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1220	Equipment Rinsate	Iron Potassium	15.7U ug/L 187U ug/L	A
01-1220	MW-20-2	Iron	43.6U ug/L	A

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1220**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1220	MW-20-1	Iron	73.1U ug/L	A
01-1220	MW-20-2	Iron	43.6U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 11, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1199

**Sample Identification**

Equipment Rinsate  
MW-20-4  
MW-20-5  
MW-20-4D

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Magnesium Potassium Sodium	168 ug/L 8.9 ug/L 100 ug/L 159 ug/L 975 ug/L	All samples in SDG 01-1199
ICB/CCB	Calcium Magnesium Potassium Sodium	51.3 ug/L 34.6 ug/L 179.7 ug/L 938.1 ug/L	All samples in SDG 01-1199

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Calcium Iron Magnesium Potassium	72.5 ug/L 12.5 ug/L 25.6 ug/L 187 ug/L	72.5U ug/L 12.5U ug/L 25.6U ug/L 187U ug/L
MW-20-5	Iron	51.3 ug/L	51.3U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/11/01	Calcium Iron Magnesium Potassium	72.5 ug/L 12.6 ug/L 25.6 ug/L 187 ug/L	MW-20-4 MW-20-5 MW-20-4D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-5	Iron	51.3 ug/L	51.3U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

**X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-20-2L	Sodium	13.4 (≤10)	All samples in SDG 01-1199	J (all detects)	A

**XI. Sample Result Verification**

All sample result verifications met validation criteria.

**XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

**XIII. Field Duplicates**

Samples MW-20-4 and MW-20-4D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/l)		RPD
	MW-20-4	MW-20-4D	
Calcium	10900	10900	0
Iron	403	200	101
Magnesium	3320	3220	3
Potassium	1120	1090	3
Sodium	60000	57600	4

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1199**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1199	Equipment Rinsate MW-20-4 MW-20-5 MW-20-4D	Sodium	J (all detects)	A	ICP serial dilution (%D)

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1199**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1199	Equipment Rinsate	Calcium Iron Magnesium Potassium	72.5U ug/L 12.5U ug/L 25.6U ug/L 187U ug/L	A
01-1199	MW-20-5	Iron	51.3U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1199**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1199	MW-20-5	Iron	51.3U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 5, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1077

**Sample Identification**

Equipment Rinsate  
MW-21-1  
MW-21-2  
MW-21-3  
MW-21-4  
MW-21-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium Sodium	129 ug/L 380 ug/L	All samples in SDG 01-1077
ICB/CCB	Iron Potassium Sodium	5.5 ug/L 131.6 ug/L 358.6 ug/L	All samples in SDG 01-1077

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
Equipment Rinsate	Potassium	144 ug/L	144U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal

contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/5/01	Iron Potassium	28.4 ug/L 144 ug/L	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-21-1	Iron	64.6 ug/L	64.6U ug/L
MW-21-2	Iron	106 ug/L	106U ug/L
MW-21-3	Iron	68.9 ug/L	68.9U ug/L
MW-21-4	Iron	124 ug/L	124U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
01-1053-2MS/MSD (All samples in SDG 01-1077)	Arsenic	-	-	21 (≤20)	J (all detects) UJ (all non-detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
1-1079-7L	Potassium	20.1 ( $\leq 10$ )	All samples in SDG 01-1077	J (all detects)	A

### XI. Sample Result Verification

All sample result verifications met validation criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1077**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1077	Equipment Rinsate MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Arsenic	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
01-1077	Equipment Rinsate MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Potassium	J (all detects)	A	ICP serial dilution (%D)

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1077**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1077	Equipment Rinsate	Potassium	144U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1077**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1077	MW-21-1	Iron	64.6U ug/L	A
01-1077	MW-21-2	Iron	106U ug/L	A
01-1077	MW-21-3	Iron	68.9U ug/L	A
01-1077	MW-21-4	Iron	124U ug/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 18, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1326

### Sample Identification

Equipment Rinsate  
MW-22-1  
MW-22-2  
MW-22-3  
MW-22-4  
MW-22-4D  
MW-22-5  
MW-22-5MS  
MW-22-5MSD  
MW-22-5DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Potassium	144 ug/L 120 ug/L	All samples in SDG 01-1326
ICB/CCB	Arsenic Calcium Iron Potassium	1.7 ug/L 174.3 ug/L 6.7 ug/L 116.1 ug/L	All samples in SDG 01-1326

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-22-2	Arsenic	2.9 ug/L	2.9U ug/L
MW-22-3	Arsenic	2.7 ug/L	2.7U ug/L
MW-22-4	Arsenic	2.3 ug/L	2.3U ug/L
MW-22-4D	Arsenic	3.1 ug/L	3.1U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-22-5	Arsenic	3.9 ug/L	3.9U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

#### **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

#### **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption QC were not reviewed for this SDG.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed

by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verifications met validation criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

Samples MW-22-4 and MW-22-4D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (µg/l)		RPD
	MW-22-4	MW-22-4D	
Arsenic	2.3	3.1	30
Calcium	33000	34000	3
Iron	302	898	99
Magnesium	9540	9710	2
Potassium	1520	1550	2
Sodium	27700	28200	2

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1326**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1326**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1326	MW-22-2	Arsenic	2.9U ug/L	A
01-1326	MW-22-3	Arsenic	2.7U ug/L	A
01-1326	MW-22-4	Arsenic	2.3U ug/L	A
01-1326	MW-22-4D	Arsenic	3.1U ug/L	A
01-1326	MW-22-5	Arsenic	3.9U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1326**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 19, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1342

**Sample Identification**

Equipment Rinsate  
MW-23-1  
MW-23-2  
MW-23-3  
MW-23-4  
MW-23-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Potassium	144 ug/L 120 ug/L	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5
ICB/CCB1	Arsenic	1.7 ug/L	Equipment Rinsate
ICB/CCB2	Arsenic Calcium Iron Potassium	1.7 ug/L 174.3 ug/L 6.7 ug/L 116.1 ug/L	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-2	Arsenic	2.7 ug/L	2.7U ug/L
MW-23-3	Arsenic	3.6 ug/L	3.6U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-4	Arsenic	4.2 ug/L	4.2U ug/L
MW-23-5	Arsenic	6.2 ug/L	6.2U ug/L

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
01-1299-5DUP (MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5)	Iron	-	84.5 ppb ( $\leq 50$ )	J (all detects) UJ (all non-detects)	A

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption QC were not reviewed for this SDG.

### X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
01-1299-5L	Sodium	12.6 ( $\leq 10$ )	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	J (all detects)	A

### XI. Sample Result Verification

All sample result verifications met validation criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Metals - Data Qualification Summary - SDG 01-1342**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1342	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	Iron	J (all detects) UJ (all non-detects)	A	Duplicate analysis (Difference)
01-1342	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	Sodium	J (all detects)	A	ICP serial dilution (%D)

**JPL, 00HW019**

**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1342**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1342	MW-23-2	Arsenic	2.7U ug/L	A
01-1342	MW-23-3	Arsenic	3.6U ug/L	A
01-1342	MW-23-4	Arsenic	4.2U ug/L	A
01-1342	MW-23-5	Arsenic	6.2U ug/L	A

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 01-1342**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 23, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1395

**Sample Identification**

Equipment Rinsate  
MW-24-1  
MW-24-2  
MW-24-3  
MW-24-4  
MW-24-5

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010 and EPA Method 200.9 for Metals. The metals analyzed were Arsenic, Calcium, Iron, Magnesium, Potassium, and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Potassium Sodium	4.8 ug/L 148 ug/L 293 ug/L	All samples in SDG 01-1395
ICB/CCB	Calcium Iron Potassium Sodium	48.9 ug/L 10.9 ug/L 149.9 ug/L 493.4 ug/L	All samples in SDG 01-1395

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No metal contaminants were found in this blank.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

All graphite furnace atomic absorption QC were within validation criteria.

#### **X. ICP Serial Dilution**

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 22 through February 1, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Soil  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Advanced Technology Laboratories

**Sample Delivery Group (SDG):** 049408

### Sample Identification

MW-12-5	MW-13
MW-12-5D	MW-5
MW-12-4	MW-10
Equipment Rinsate(1/22)	MW-9
MW-12-3	MW-1
MW-12-2	MW-1D
MW-12-1	MW-6
MW-24-5	MW-15
MW-24-4	MW-8
MW-24-3	MW-12-4MS
MW-24-2	MW-12-4MSD
MW-24-1	MW-12-4DUP
Equipment Rinsate(1/23)	MW-13DUP
MW-4-5	MW-9MS
MW-4-4	MW-9MSD
MW-4-3	MW-9DUP
MW-4-2	MW-8MS
MW-4-1	MW-8MSD
Equipment Rinsate(1/24)	MW-8DUP
MW-16	

## Introduction

This data review covers 39 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Metals. The metals analyzed were Chromium and Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 049408	Chromium Lead	The pH for these samples was greater than 2, as noted by the laboratory.	The pH must be less than 2, per the method.	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	0.581 ug/L	MW-12-5 MW-12-5D MW-12-4 Equipment Rinsate(1/22) MW-12-3 MW-12-2 MW-12-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2 MW-24-1 Equipment Rinsate(1/23) MW-4-5 MW-4-3 MW-4-2 MW-4-1 Equipment Rinsate(1/24) MW-16 MW-13

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB2 (prep blank)	Chromium	0.393 ug/L	MW-5 MW-10 MW-1 MW-1D MW-6 MW-15
ICB/CCB2	Chromium	0.581 ug/L	MW-5 MW-10 MW-1 MW-1D MW-6 MW-15
ICB/CCB3	Chromium	0.209 ug/L	MW-4-4
PB4 (prep blank)	Chromium	0.138 ug/L	MW-9
ICB/CCB4	Chromium	0.616 ug/L	MW-9

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks.

Samples Equipment Rinsate(1/22), Equipment Rinsate(1/23), and Equipment Rinsate(1/24) were identified as equipment rinsates. No chromium or lead contaminants were found in this blank.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-8MS/MSD (All samples in SDG 049408)	Chromium	-	36 (80-120)	41 ( $\leq 20$ )	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution was not required by the method.

## XI. Sample Result Verification

All sample result verifications met validation criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples MW-12-5 and MW-12-5D and samples MW-1 and MW-1D were identified as field duplicates. No chromium or lead were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/l)		RPD
	MW-12-5	MW-12-5D	
Chromium	6.4	5.9	8

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 049408**

SDG	Sample	Analyte	Flag	A or P	Reason
049408	MW-12-5 MW-12-5D MW-12-4 Equipment Rinsate(1/22) MW-12-3 MW-12-2 MW-12-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2 MW-24-1 Equipment Rinsate(1/23) MW-4-5 MW-4-4 MW-4-3 MW-4-2 MW-4-1 Equipment Rinsate(1/24) MW-16 MW-13 MW-5 MW-10 MW-9 MW-1 MW-1D MW-6 MW-15 MW-8	Chromium  Lead	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Sample condition
049408	MW-12-5 MW-12-5D MW-12-4 Equipment Rinsate(1/22) MW-12-3 MW-12-2 MW-12-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2 MW-24-1 Equipment Rinsate(1/23) MW-4-5 MW-4-4 MW-4-3 MW-4-2 MW-4-1 Equipment Rinsate(1/24) MW-16 MW-13 MW-5 MW-10 MW-9 MW-1 MW-1D MW-6 MW-15 MW-8	Chromium	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R) (RPD)

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 049408**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Metals - Field Blank Data Qualification Summary - SDG 049408**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019

**Collection Date:** January 12 through January 19, 2001

**LDC Report Date:** April 24, 2001

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level IV

**Laboratory:** Advanced Technology Laboratories

**Sample Delivery Group (SDG):** 049146

### Sample Identification

MW-20-3	MW-11-4	MW-19-3MS
Equipment Rinsate 1/12	MW-11-3	MW-19-3MSD
MW-20-2	MW-11-2	MW-19-3DUP
MW-20-1	MW-11-1	MW-11-4DUP
MW-19-5	MW-22-5	MW-22-5MS
Equipment Rinsate 1/15	Equipment Rinsate 1/18	MW-22-5MSD
MW-19-4	MW-22-4	MW-22-5DUP
MW-19-3	MW-22-4D	MW-23-1DUP
MW-19-2	MW-22-3	
MW-19-2D	MW-22-2	
MW-19-1	MW-22-1	
MW-14-5	MW-23-5	
MW-14-4	MW-23-4	
Equipment Rinsate 1/16	Equipment Rinsate 1/19	
MW-14-3	MW-23-3	
MW-14-2	MW-23-2	
MW-14-1	MW-23-1	
MW-11-5	MW-20-2MS	
MW-11-5D	MW-20-2MSD	
Equipment Rinsate 1/17	MW-20-2DUP	

## Introduction

This data review covers 48 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium and Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-20-3 Equipment Rinsate 1/12 MW-20-2 MW-20-1 MW-19-5 Equipment Rinsate 1/15 MW-19-4 MW-19-3 MW-19-2 MW-19-2D MW-19-1 MW-14-5 MW-14-4 Equipment Rinsate 1/16 MW-14-3 MW-14-2 MW-14-1 MW-11-5D MW-11-3 MW-11-2 MW-11-1 MW-22-5 MW-22-4 MW-22-4D MW-22-3 MW-22-2 MW-22-1 MW-23-4 MW-23-3 MW-23-2	Chromium  Lead	The pH for these samples was greater than 2 as noted by the laboratory.	The pH must be less than 2 per the method.	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
1/24/01	CCV	Chromium	111 (90-110)	MW-11-1 MW-22-5 Equipment Rinsate 1/18 MW-22-4 MW-22-4D MW-22-3 MW-22-2 MW-22-5MS MW-22-5MSD MW-22-5DUP	J (all detects)	P
2/15/01	CCV	Chromium	113 (90-110)	MW-20-2DUP MB-2663 LCS-2663	J (all detects)	P

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB1 (prep blank)	Lead	0.044 ug/L	MW-20-3 Equipment Rinsate 1/12 MW-20-2 MW-20-1 MW-19-5 Equipment Rinsate 1/15 MW-19-4 MW-19-2 MW-19-2D MW-19-1 MW-14-5 MW-14-4 Equipment Rinsate 1/16 MW-14-3 MW-14-2 MW-14-1 MW-11-5 MW-11-5D Equipment Rinsate 1/17 MW-11-4

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB1	Chromium	0.494 ug/L	MW-20-3 Equipment Rinsate 1/12 MW-20-2 MW-20-1 MW-19-5 Equipment Rinsate 1/15 MW-19-4 MW-19-2 MW-19-2D MW-19-1 MW-14-5 MW-14-4 Equipment Rinsate 1/16 MW-14-3 MW-14-2 MW-14-1 MW-11-5 MW-11-5D Equipment Rinsate 1/17 MW-11-4
ICB/CCB2	Chromium	0.499 ug/L	MW-11-3 MW-11-2 MW-11-1 MW-22-5 Equipment Rinsate 1/18 MW-22-4 MW-22-4D MW-22-3 MW-22-2
ICB/CCB3	Chromium	0.121 ug/L	MW-19-3

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples "Equipment Rinsate 1/12", "Equipment Rinsate 1/15", "Equipment Rinsate 1/16", "Equipment Rinsate 1/17", "Equipment Rinsate 1/18", and "Equipment Rinsate 1/19" were identified as equipment rinsates. No chromium or lead contaminants were found in these blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not utilized in this SDG.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

All internal standard percent recoveries (%R) were within QC limits.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples MW-19-2 and MW-19-2D, samples MW-11-5 and MW-11-5D and samples MW-22-4 and MW-22-4D were identified as field duplicates. No chromium or lead were detected in any of the samples.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 049146**

SDG	Sample	Analyte	Flag	A or P	Reason
				P	Sample condition (pH)
049146	MW-11-1 MW-22-5 Equipment Rinsate 1/18 MW-22-4 MW-22-4D MW-22-3 MW-22-2	Chromium	J (all detects)	P	Calibration (%R)

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 049146**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 049146**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 5 through January 11, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level IV  
**Laboratory:** Advanced Technology Laboratories  
**Sample Delivery Group (SDG):** 049026

### Sample Identification

MW-21-5	MW-18-4
MW-21-4	Equipment Rinsate 1/10
MW-21-3	MW-18-3
MW-21-2	MW-18-2
MW-21-1	MW-20-5
Equipment Rinsate 1/5	MW-20-4
MW-17-5	Equipment Rinsate 1/11
MW-17-4	MW-20-4D
MW-17-3	MW-17-3MS
MW-17-2	MW-17-3MSD
MW-17-2D	MW-17-3DUP
MW-17-1	MW-17-1MS
Equipment Rinsate 1/8	MW-17-1MSD
MW-3-5	MW-17-1DUP
MW-3-4	MW-18-3DUP
Equipment Rinsate 1/9	MW-20-4DMS
MW-3-3	MW-20-4DMSD
MW-3-2	MW-20-4DDUP
MW-3-1	
MW-18-5	

## Introduction

This data review covers 38 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium and Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 049026	Chromium Lead	The pH for these samples was greater than 2 as noted by the laboratory.	The pH must be less than 2 per the method.	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB1 (prep blank)	Chromium	0.087 ug/L	MW-21-5 MW-21-4 MW-21-3 MW-21-2 MW-21-1 Equipment Rinsate 1/5 MW-17-2 MW-17-2D MW-17-1 Equipment Rinsate 1/8 MW-3-5 MW-3-4 Equipment Rinsate 1/9 MW-3-3 MW-3-2 MW-3-1 MW-18-5 MW-18-4 Equipment Rinsate 1/10 MW-18-3

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB1	Chromium	0.633 ug/L	MW-21-5 MW-21-4 MW-21-3 MW-21-2 MW-21-1 Equipment Rinsate 1/5 MW-17-2 MW-17-2D MW-17-1 Equipment Rinsate 1/8 MW-3-5 MW-3-4 Equipment Rinsate 1/9 MW-3-3 MW-3-2 MW-3-1 MW-18-5 MW-18-4 Equipment Rinsate 1/10 MW-18-3
PB2 (prep blank)	Chromium	0.704 ug/L	MW-18-2 MW-20-5 MW-20-4 Equipment Rinsate 1/11 MW-20-4D
ICB/CCB2	Chromium	0.756 ug/L	MW-18-2 MW-20-5 MW-20-4 Equipment Rinsate 1/11 MW-20-4D
PB3 (prep blank)	Chromium Lead	0.488 ug/L 0.153 ug/L	MW-17-5 MW-17-4 MW-17-3
ICB/CCB3	Chromium	0.862 ug/L	MW-17-5 MW-17-4 MW-17-3

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples "Equipment Rinsate 1/5", "Equipment Rinsate 1/8", "Equipment Rinsate 1/9", "Equipment Rinsate 1/10", and "Equipment Rinsate 1/11" were identified as equipment rinsates. No chromium or lead contaminants were found in these blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not utilized in this SDG.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each

matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VI. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### **VIII. Internal Standard (ICP-MS)**

All internal standard percent recoveries (%R) were within QC limits.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples MW-17-2 and MW-17-2D and samples MW-20-4 and MW-20-4D were identified as field duplicates. No chromium or lead were detected in any of the samples.

**JPL, 00HW019**  
**Metals - Data Qualification Summary - SDG 049026**

SDG	Sample	Analyte	Flag	A or P	Reason
049026	MW-21-5 MW-21-4 MW-21-3 MW-21-2 MW-21-1 Equipment Rinsate 1/5 MW-17-5 MW-17-4 MW-17-3 MW-17-2 MW-17-2D MW-17-1 Equipment Rinsate 1/8 MW-3-5 MW-3-4 Equipment Rinsate 1/9 MW-3-3 MW-3-2 MW-3-1 MW-18-5 MW-18-4 Equipment Rinsate 1/10 MW-18-3 MW-18-2 MW-20-5 MW-20-4 Equipment Rinsate 1/11 MW-20-4D	Chromium  Lead	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Sample condition (pH)

**JPL, 00HW019**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 049026**

No Sample Data Qualified in this SDG

**JPL, 00HW019**  
**Metals - Field Blank Data Qualification Summary - SDG 049026**

No Sample Data Qualified in this SDG

# Wet Chemistry

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 29, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1533

**Sample Identification**

MW-1  
MW-9  
MW-1D  
MW-9MS  
MW-9MSD  
MW-9DUP  
MW-1DDUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 2614) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-1 MW-9 MW-1D MW-9MS MW-9MSD	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### V. Sample Result Verification

All sample result verifications were within validation criteria.

### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

### VII. Field Duplicates

Samples MW-1 and MW-1D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/l)		RPD
	MW-1	MW-1D	
Bicarbonate alkalinity	194	188	3
pH (units)	7.25	7.25	0
Total dissolved solids	316	317	0.3
Chloride	21	21	0
Nitrate as N	1.2	1.2	0
Sulfate	50	49	2

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1533**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1533	MW-1 MW-9 MW-1D	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1533**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1533**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 9, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1135

**Sample Identification**

Equipment Rinsate  
MW-3-1  
MW-3-2  
MW-3-3  
MW-3-4  
MW-3-5  
MW-3-3MS  
MW-3-3MSD  
Equipment RinsateDUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1135	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/9/01	Total dissolved solids Chloride Nitrate as N	13 mg/L 0.06 mg/L 0.02 mg/L	MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## IV. Accuracy and Precision Data

#### **a. Matrix Spike/(Matrix Spike) Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

#### **b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1135**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1135	Equipment Rinsate MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1135**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1135**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 24, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1420

**Sample Identification**

Equipment Rinsate  
MW-4-1  
MW-4-2  
MW-4-3  
MW-4-4  
MW-4-5  
MW-4-1MS  
MW-4-1MSD  
MW-4-1DUP  
MW-4-5MS  
MW-4-5MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-5MS MW-4-5MSD	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P
Equipment Rinsate MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

#### **b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1420**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1420	MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5	Chloride Sulfate Nitrate as N	None None None	P	Initial calibration
01-1420	Equipment Rinsate MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5	Perchlorate	None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1420**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1420**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 26, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1476

**Sample Identification**

MW-10  
MW-5  
MW-10MS  
MW-10MSD

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-10 MW-5 MW-10MS MW-10MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P
MW-10 MW-5	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1476**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1476	MW-10 MW-5	Perchlorate Chloride Sulfate Nitrate as N	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1476**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1476**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 30, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1562

**Sample Identification**

MW-6  
MW-15  
MW-15MS  
MW-15MSD  
MW-6MS  
MW-6MSD  
MW-15DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 2614) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-6 MW-15	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P
MW-6 MW-15 MW-15MS MW-15MSD	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1562**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1562	MW-6 MW-15	Perchlorate Chloride Sulfate Nitrate as N	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1562**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1562**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** February 1, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1611

**Sample Identification**

MW-8  
MW-8MS  
MW-8MSD  
MW-8DUP

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1611	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1611**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1611	MW-8	Perchlorate Chloride Sulfate Nitrate as N	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1611**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1611**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 17, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1299

### Sample Identification

Equipment Rinsate  
MW-11-1  
MW-11-2  
MW-11-3  
MW-11-4  
MW-11-5  
MW-11-5D  
MW-11-1DUP  
MW-11-4MS  
MW-11-4MSD  
MW-11-4DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 2614) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D MW-11-4MS MW-11-4MSD	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P
Equipment Rinsate MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D MW-11-4MS MW-11-4MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Sample Result Verification

All sample result verifications were within validation criteria.

## VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## VII. Field Duplicates

Samples MW-11-5 and MW-11-5D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/l)		RPD
	MW-11-5	MW-11-5D	
Alkalinity	117	135	14
pH (units)	7.80	7.95	2
Total dissolved solids	205	216	5
Chloride	12	12	0
Sulfate	19	18	5

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1299**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1299	MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D	Chloride Sulfate Nitrate as N	None None None	P	Initial calibration
01-1299	Equipment Rinsate MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5D	Perchlorate	None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1299**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1299**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 22, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1382

**Sample Identification**

Equipment Rinsate  
MW-12-1  
MW-12-2  
MW-12-3  
MW-12-4  
MW-12-5  
MW-12-5D  
MW-12-1DUP  
MW-12-4MS  
MW-12-4MSD  
MW-12-4DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Equipment Rinsate MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D MW-12-4MS MW-12-4MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P
MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D MW-12-4MS MW-12-4MSD	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
1/26/01	CCV	Perchlorate	89 (90-110)	MW-12-4MS MW-12-4MSD	J (all detects) UJ (all non-detects)	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Sample Result Verification

All sample result verifications were within validation criteria.

## VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## VII. Field Duplicates

Samples MW-12-5 and MW-12-5D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/l)		RPD
	MW-12-5	MW-12-5D	
Bicarbonate alkalinity	168	168	0
pH (units)	7.91	7.96	0.6
Total dissolved solids	238	229	4
Chloride	15	15	0
Nitrate as N	1.3	1.3	0
Sulfate	15	16	6

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1382**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1382	Equipment Rinsate MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D	Perchlorate	None	P	Initial calibration
01-1382	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-5D	Chloride Sulfate Nitrate as N	None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1382**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1382**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 25, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1460

**Sample Identification**

MW-13  
MW-16  
MW-13MS  
MW-13MSD  
MW-16MS  
MW-16MSD  
MW-16DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-13 MW-16 MW-16MS MW-16MSD	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1460**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1460	MW-13 MW-16	Perchlorate Chloride Sulfate Nitrate as N	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1460**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1460**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 16, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1275

**Sample Identification**

Equipment Rinsate  
MW-14-1  
MW-14-2  
MW-14-3  
MW-14-4  
MW-14-5  
MW-14-1MS  
MW-14-1MSD  
MW-14-3DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Hours From Sample Collection Until Analysis	Required Holding Time (in Hours) From Sample Collection Until Analysis	Flag	A or P
Equipment Rinsate MW-14-3	Nitrate as N	49	48	J (all detects) UJ (all non-detects)	P
MW-14-4	Nitrate as N	50.25	48	J (all detects) UJ (all non-detects)	P
MW-14-5	Nitrate as N	51.50	48	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1275	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/16/01	Chloride Nitrate as N	0.04 mg/L 0.39 mg/L	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-5	Nitrate as N	0.2 mg/L	0.2U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1275**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1275	Equipment Rinsate MW-14-3 MW-14-4 MW-14-5	Nitrate as N	J (all detects) UJ (all non-detects)	P	Technical holding times
01-1275	Equipment Rinsate MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1275**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1275**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1275	MW-14-5	Nitrate as N	0.2U mg/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 8, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1095

**Sample Identification**

Equipment Rinsate  
MW-17-1  
MW-17-2  
MW-17-3  
MW-17-4  
MW-17-5  
MW-17-2D  
MW-17-1MS  
MW-17-1MSD  
MW-17-1DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1095	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/8/01	Total dissolved solids Chloride Nitrate as N	11 mg/L 0.05 mg/L 0.02 mg/L	MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

**b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**V. Sample Result Verification**

All sample result verifications were within validation criteria.

**VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

**VII. Field Duplicates**

Samples MW-17-2 and MW-17-2D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/l)		RPD
	MW-17-2	MW-17-2D	
Bicarbonate	133	135	1
Total dissolved solids	200	204	2
Chloride	6.8	6.6	3
Nitrate as N	0.57	0.56	2
Sulfate	22	22	0
pH (units)	7.97	8.07	1

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1095**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1095	Equipment Rinsate MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1095**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1095**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 10, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1172

**Sample Identification**

Equipment Rinsate  
MW-18-2  
MW-18-3  
MW-18-4  
MW-18-5  
Equipment RinsateMS  
Equipment RinsateMSD  
Equipment RinsateDUP  
MW-18-2MS  
MW-18-2MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1172	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/10/01	Chloride Nitrate as N	0.2 mg/L 0.04 mg/L	MW-18-2 MW-18-3 MW-18-4 MW-18-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank

contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-18-5	Nitrate as N	0.1 mg/L	0.1U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### VII. Field Duplicates

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1172**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1172	Equipment Rinsate MW-18-2 MW-18-3 MW-18-4 MW-18-5	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1172**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1172**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1172	MW-18-5	Nitrate as N	0.1U mg/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 15, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1261

### Sample Identification

Equipment Rinsate  
MW-19-1  
MW-19-2  
MW-19-3  
MW-19-4  
MW-19-5  
MW-19-2D  
MW-19-1DUP  
MW-19-3MS  
MW-19-3MSD  
MW-19-3DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 2614) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1261	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/15/01	Nitrate as N	0.42 mg/L	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank

contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-19-1	Nitrate as N	0.64 mg/L	0.64U mg/L
MW-19-4	Nitrate as N	1.5 mg/L	1.5U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### VII. Field Duplicates

Samples MW-19-2 and MW-19-2D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-19-2	MW-19-2D	
Bicarbonate alkalinity	174	150	15
pH (units)	6.84	6.83	0.1
Total dissolved solids	359	352	1

Analyte	Concentration (mg/l)		RPD
	MW-19-2	MW-19-2D	
Chloride	25	26	4
Nitrate as N	3.8	7.50	65
Sulfate	48	49	2

**JPL, 00HW019****Wet Chemistry - Data Qualification Summary - SDG 01-1261**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1261	Equipment Rinsate MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-2D	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019****Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1261**

No Sample Data Qualified in this SDG

**JPL, 00HW019****Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1261**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1261	MW-19-1	Nitrate as N	0.64U mg/L	A
01-1261	MW-19-4	Nitrate as N	1.5U mg/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 12, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1220

### Sample Identification

Equipment Rinsate  
MW-20-1  
MW-20-2  
MW-20-3  
MW-20-2MS  
MW-20-2MSD  
MW-20-2DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1220	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/12/01	Chloride Nitrate as N	0.1 mg/L 0.74 mg/L	MW-20-1 MW-20-2 MW-20-3

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the

following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-2	Nitrate as N	2.0 mg/L	2.0U mg/L
MW-20-3	Nitrate as N	0.92 mg/L	0.92U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### VII. Field Duplicates

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1220**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1220	Equipment Rinsate MW-20-1 MW-20-2 MW-20-3	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1220**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1220**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1220	MW-20-2	Nitrate as N	2.0U mg/L	A
01-1220	MW-20-3	Nitrate as N	0.92U mg/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 11, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1199

**Sample Identification**

Equipment Rinsate  
MW-20-4  
MW-20-5  
MW-20-4D  
Equipment RinsateMS  
Equipment RinsateMSD  
Equipment RinsateDUP  
MW-20-4MS  
MW-20-4MSD

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Equipment Rinsate MW-20-4 MW-20-5 MW-20-4D MW-20-4MS MW-20-4MSD	Perchlorate Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/11/01	Chloride Nitrate as N	0.05 mg/L 0.16 mg/L	MW-20-4 MW-20-5 MW-20-4D

Sample concentrations were compared to concentrations detected in the field blanks. The

sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-5	Nitrate as N	0.05 mg/L	0.05U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### VII. Field Duplicates

Samples MW-20-4 and MW-20-4D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/l)		RPD
	MW-20-4	MW-20-4D	
Bicarbonate alkalinity	117	122	4
Carbonate alkalinity	13	8.8	38
pH (units)	8.54	8.35	2

Analyte	Concentration (mg/l)		RPD
	MW-20-4	MW-20-4D	
Total dissolved solids	200	210	5
Chloride	11	10.7	3
Sulfate	19	20	5

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1199**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1199	Equipment Rinsate MW-20-4 MW-20-5 MW-20-4D	Perchlorate Chloride Sulfate Nitrate as N	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1199**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1199**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1199	MW-20-5	Nitrate as N	0.05U mg/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 5, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1077

**Sample Identification**

Equipment Rinsate  
MW-21-1  
MW-21-2  
MW-21-3  
MW-21-4  
MW-21-5  
MW-21-1MS  
MW-21-1MSD  
MW-21-1DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1077	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB	Chloride	0.09 mg/L	All samples in SDG 01-1077

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
Equipment Rinsate	1/5/01	Total dissolved solids Nitrate as N	36 mg/L 1.69 mg/L	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-21-2	Nitrate as N	7.7 mg/L	7.7U mg/L
MW-21-4	Nitrate as N	7.3 mg/L	7.3U mg/L
MW-21-5	Nitrate as N	8.0 mg/L	8.0U mg/L

#### IV. Accuracy and Precision Data

##### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

##### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### V. Sample Result Verification

All sample result verifications were within validation criteria.

#### VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1077**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1077	Equipment Rinsate MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1077**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1077**

SDG	Sample	Analyte	Modified Final Concentration	A or P
01-1077	MW-21-2	Nitrate as N	7.7U mg/L	A
01-1077	MW-21-4	Nitrate as N	7.3U mg/L	A
01-1077	MW-21-5	Nitrate as N	8.0U mg/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 18, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1326

### Sample Identification

Equipment Rinsate

MW-22-1

MW-22-2

MW-22-3

MW-22-4

MW-22-5

MW-22-4D

MW-22-1DUP

MW-22-1MS

MW-22-1MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Equipment Rinsate MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 MW-22-4D MW-22-1MS MW-22-1MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P
MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 MW-22-4D MW-22-1MS MW-22-1MSD	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Sample Result Verification

All sample result verifications were within validation criteria.

## VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

## VII. Field Duplicates

Samples MW-22-4 and MW-22-4D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-22-4	MW-22-4D	
Bicarbonate alkalinity	137	137	0
pH (units)	7.72	7.80	1
Total dissolved solids	218	224	3
Chloride	14	12	15
Nitrate as N	4.72	4.48	5
Sulfate	7.8	7.0	11

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1326**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1326	Equipment Rinsate MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 MW-22-4D	Perchlorate	None	P	Initial calibration
01-1326	MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 MW-22-4D	Chloride Sulfate Nitrate as N	None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1326**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1326**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 19, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory

**Sample Delivery Group (SDG):** 01-1342

**Sample Identification**

Equipment Rinsate  
MW-23-1  
MW-23-2  
MW-23-3  
MW-23-4  
MW-23-5  
Equipment RinsateMS  
Equipment RinsateMSD  
MW-23-1DUP  
MW-23-2MS  
MW-23-2MSD  
MW-23-5MS  
MW-23-5MSD

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-1342	Chloride Sulfate Nitrate as N Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

### a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

### b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1342**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1342	Equipment Rinsate MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	Chloride Sulfate Nitrate as N Perchlorate	None None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1342**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1342**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** JPL, 00HW019  
**Collection Date:** January 23, 2001  
**LDC Report Date:** April 24, 2001  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level IV  
**Laboratory:** Applied P & Ch Laboratory  
**Sample Delivery Group (SDG):** 01-1395

**Sample Identification**

Equipment Rinsate  
MW-24-1  
MW-24-2  
MW-24-3  
MW-24-4  
MW-24-5  
MW-24-1MS  
MW-24-1MSD  
MW-24-1DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, Standard Method 2320B for Bicarbonate and Carbonate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Equipment Rinsate MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-1MS MW-24-1MSD MW-24-1DUP	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P
MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5	Chloride Sulfate Nitrate as N	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None None None	P

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample "Equipment Rinsate" was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

## IV. Accuracy and Precision Data

#### **a. Matrix Spike/(Matrix Spike) Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

#### **b. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **V. Sample Result Verification**

All sample result verifications were within validation criteria.

#### **VI. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **VII. Field Duplicates**

No field duplicates were identified in this SDG.

**JPL, 00HW019**

**Wet Chemistry - Data Qualification Summary - SDG 01-1395**

SDG	Sample	Analyte	Flag	A or P	Reason
01-1395	Equipment Rinsate MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5	Perchlorate	None	P	Initial calibration
01-1395	MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5	Chloride Sulfate Nitrate as N	None None None	P	Initial calibration

**JPL, 00HW019**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG

**JPL, 00HW019**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-1395**

No Sample Data Qualified in this SDG